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EMERGING TECHNOLOGIES FOR THE NATURAL GAS INDUSTRY: ADVANCED DIAGNOSTICS AND IMAGING – LOW PERMEABILITY FORMATIONS

This program area focuses on the development of technology for cost-effective recovery of natural gas from low permeability formations. Emphasis is currently on three major areas:

- Demonstration of exploration technologies, with strong near-term commercialization potential, to detect areas of high natural fracture density that will likely lead to commercial gas production. Three projects will demonstrate: Geomechanical Modeling (Greater Green River Basin, Wind River Basin, Anadarko Basin); Multiple Azimuth 3-D Seismic Attributes (San Juan Basin); and Integrated 2-D Seismic and Remote Sensing (Appalachian Basin).
- Research and development of the next generation of fracture detection technology that will advance natural fracture detection methodologies that hold promise for improved characterization of reservoir flow properties in low permeability formations. Five projects will focus on: Multi-component 3-D Seismic/Integrated Reservoir Simulation (San Juan Basin); Multi-Attribute Seismic/Rock Physics (West Texas); Integrated Geomechanical and Reservoir Modeling (Greater Green River Basin and Austin Chalk); Basin Simulation: 3-D Reaction, Transport and Mechanical Model (Austin Chalk and Illinois Basin); and S-Wave Propagation Analysis with Microfracture-Based Verification Technique (Ardmore Basin).
- Improved production technology projects will help optimize in-fill drilling and validate exploration and stimulation technologies.



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Current Activities

- Exploration Demonstrations of Natural Fracture Detection Using Geomechanical Modeling, Multiple Azimuth 3-D Seismic Attributes, and Integrated 2-D Seismic and Remote Sensing
- Research and Development of the Next Generation of Fracture Detection Technology
- Optimization of In-fill Drilling
- Demonstration of Exploration and Stimulation Technologies
- CRADA Research Projects; Evaluation of Fractured Reservoirs with Industry

Low Permeability Formation Diagnostics

